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(54) Abstract Title
Adjustment of stationary carding segment

(57) To adjust the distance, during carding, between the clothing of stationary carding segment 17' and the clothing 4a of a rotating carding cylinder, a wedge-shaped flexible bearing layer 20 at either side of the cylinder is driven along a respective stationary, sloping, convex groove bottom 19c to move the carding segment in radial directions C, D. Layer 20 may be made of flexible plastics.

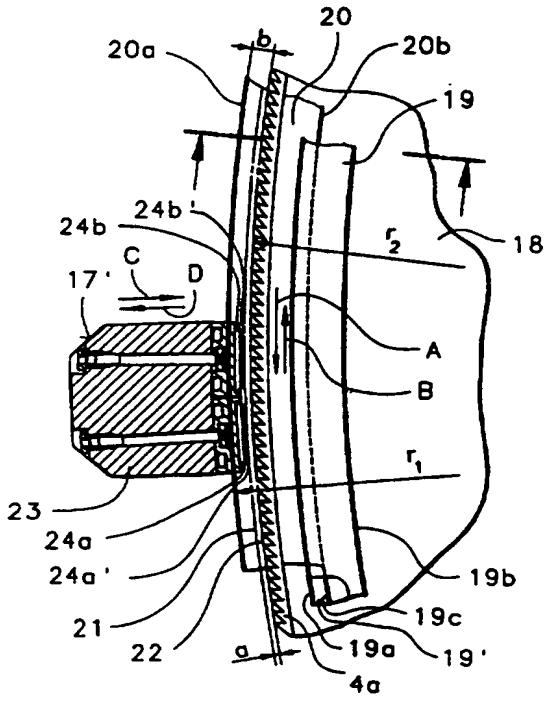

FIG. 2

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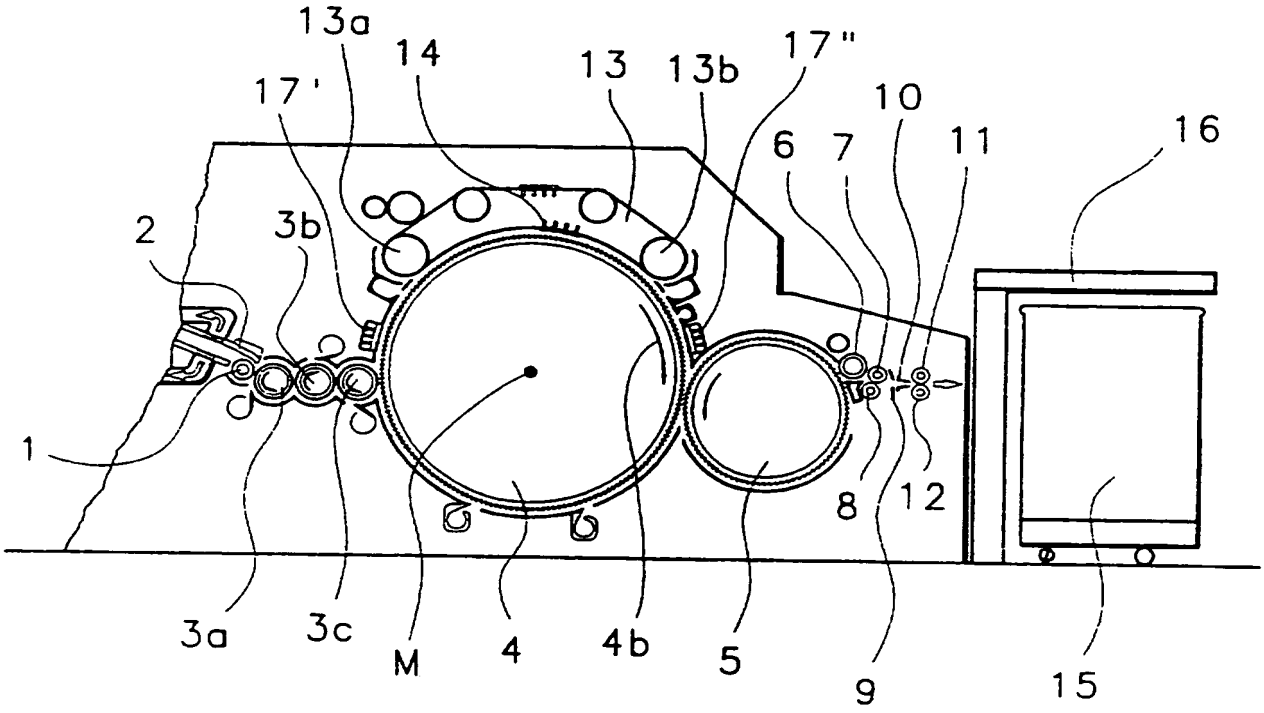
FIG. 1



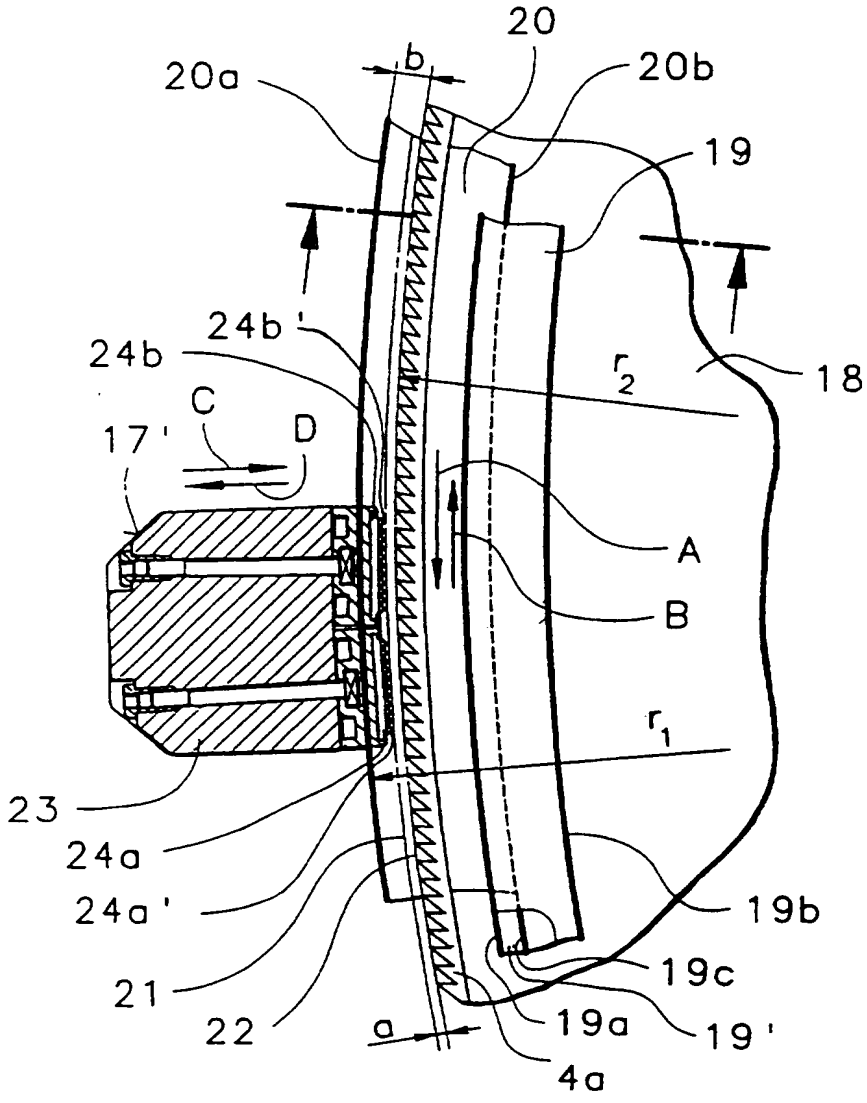

20
b
20a
20b
19
24b'
24b
r2
18
C
D
17'
A
B
r1
23
24a
24a'
21
22
a
19a
19'
19b
19c
4a

FIG. 2

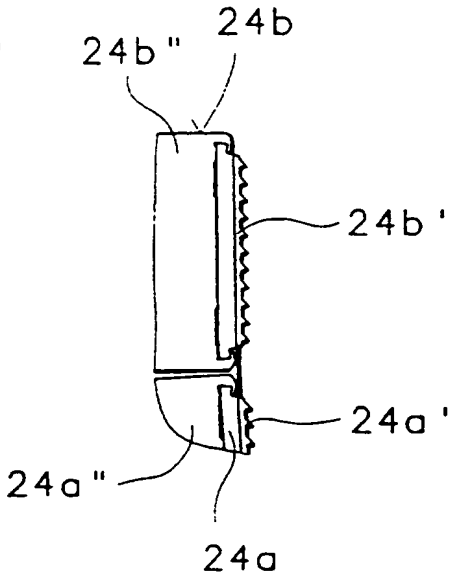

24b"
24b
24b'
24a'
24a"
24a

FIG. 2a

FIG. 3a

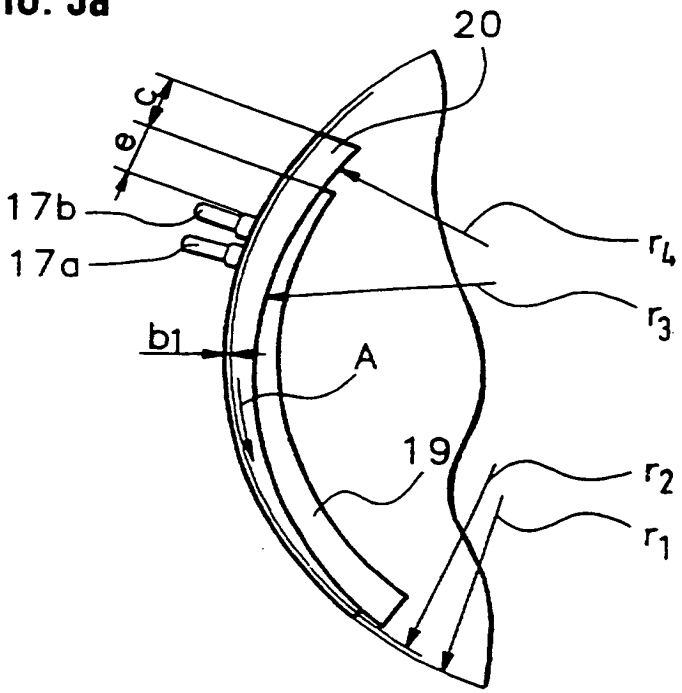
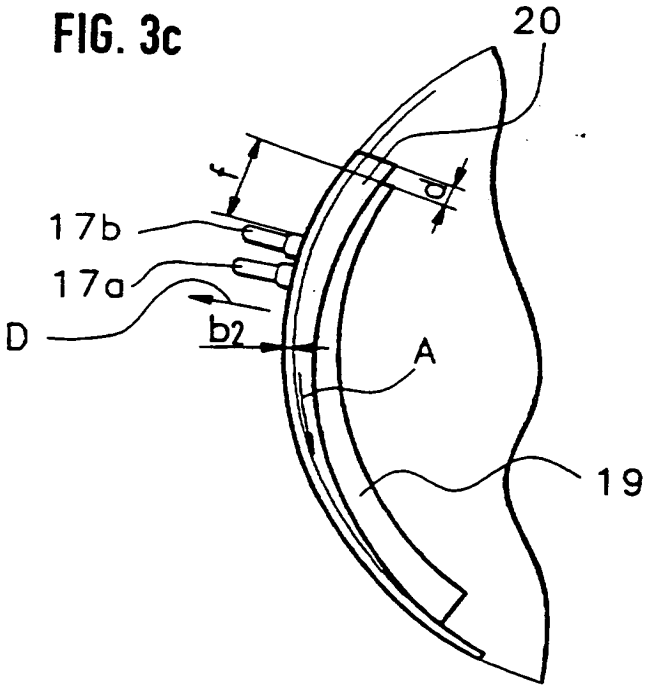


FIG. 3c



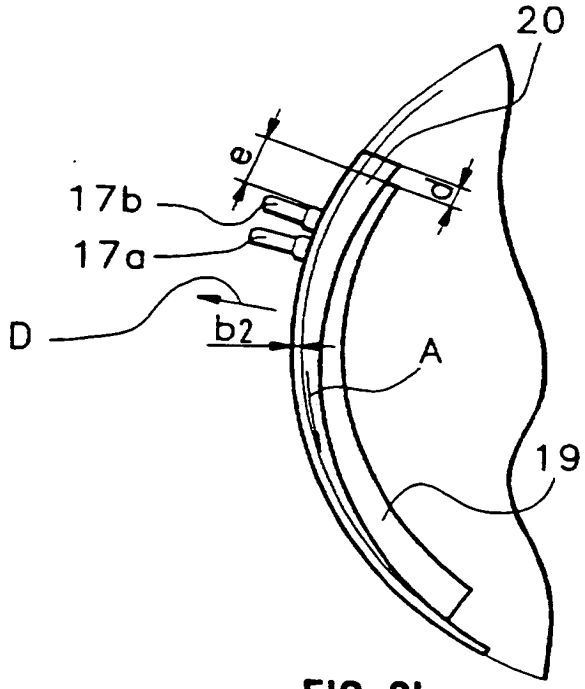
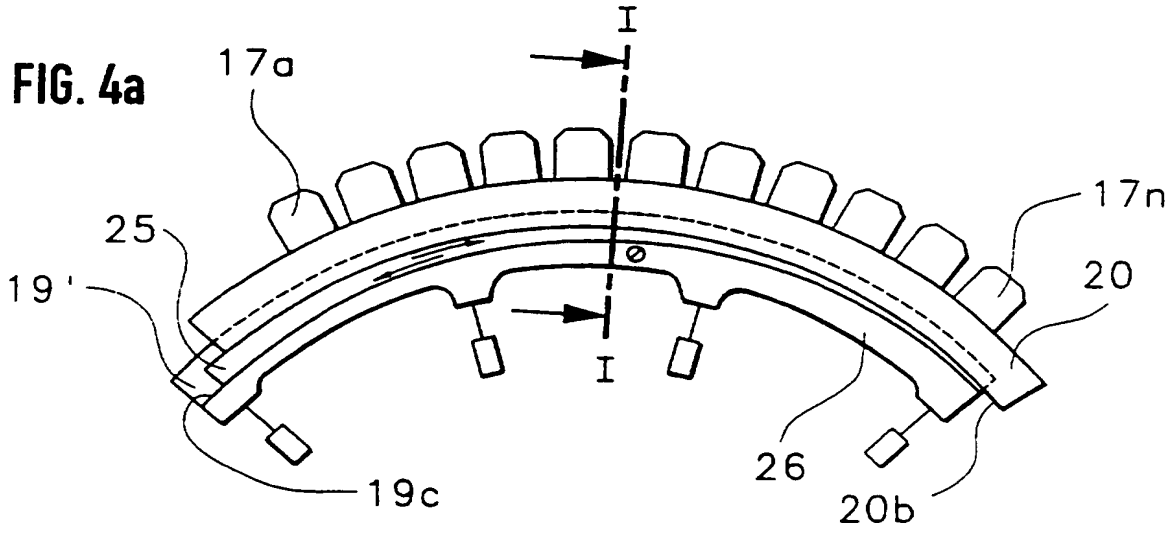


FIG. 3b

FIG. 4a



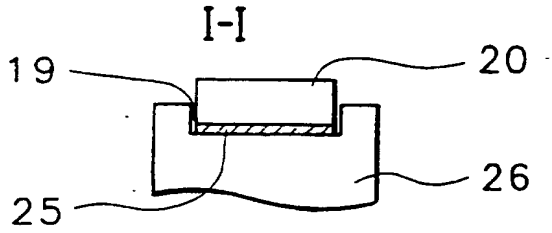
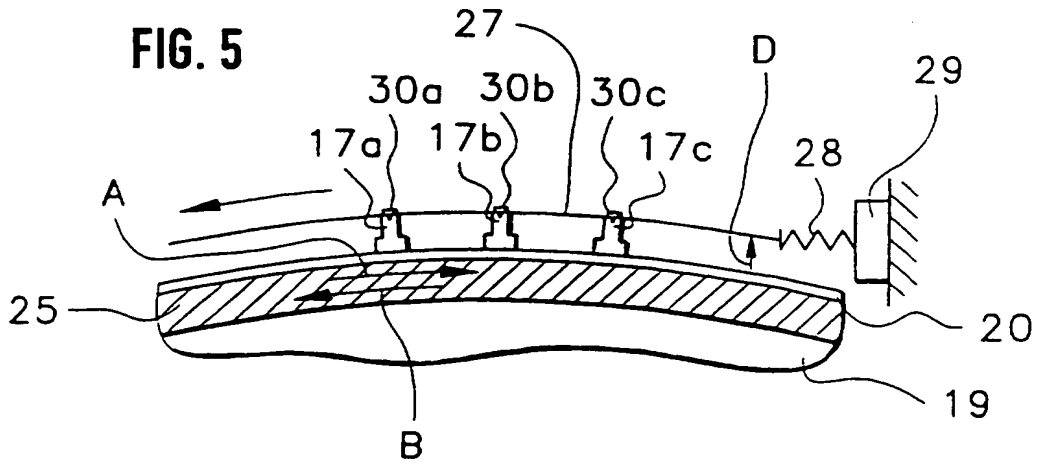


FIG. 4b

FIG. 5



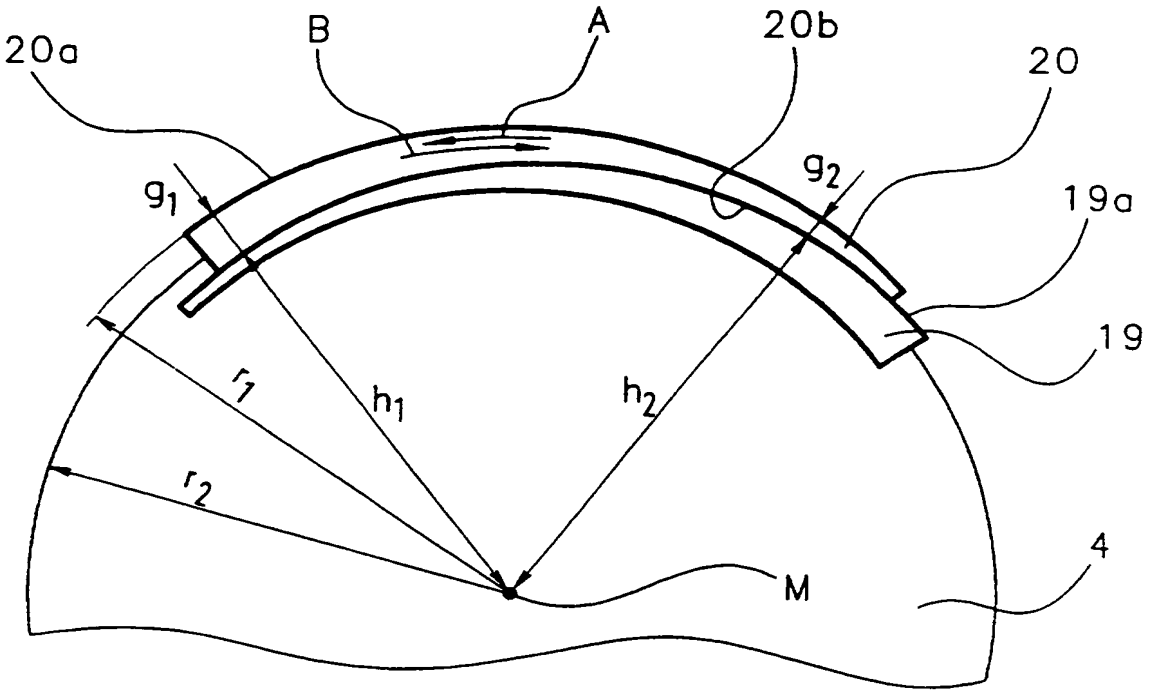

20a
B
A
20b
20
g_1
g_2
19a
19
r_1
h_1
h_2
r_2
M
4

FIG. 6

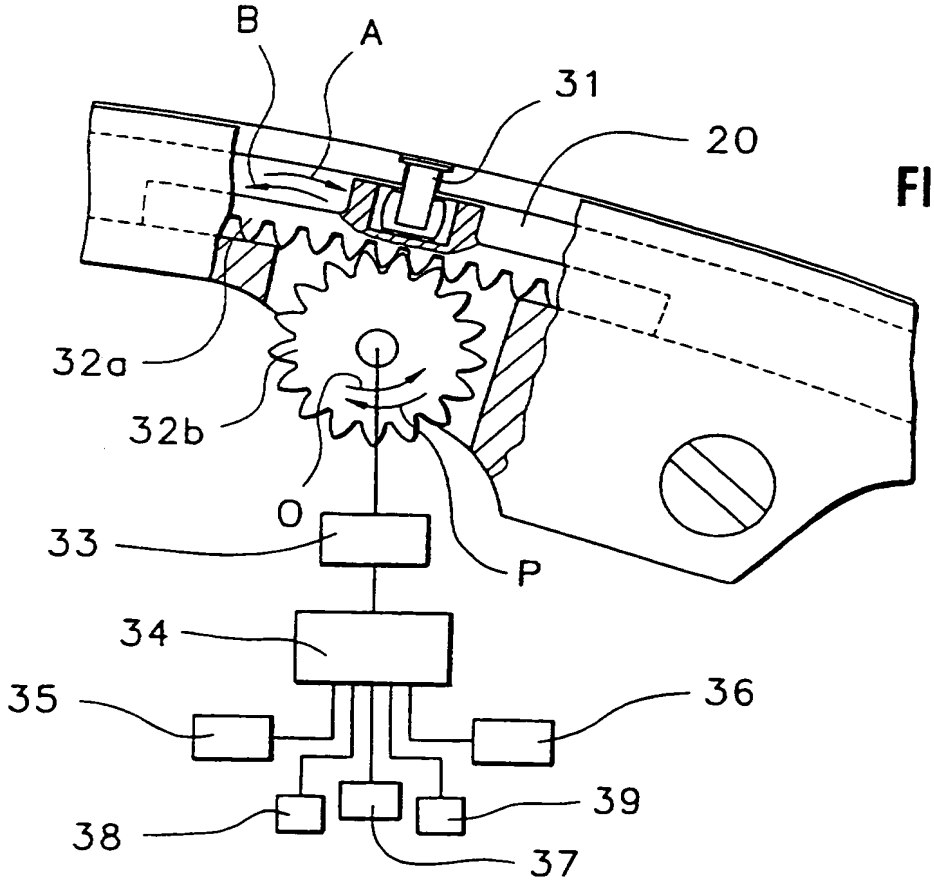

B
A
31
20
32a
32b
O
33
P
34
35
36
38
39
37

FIG. 7

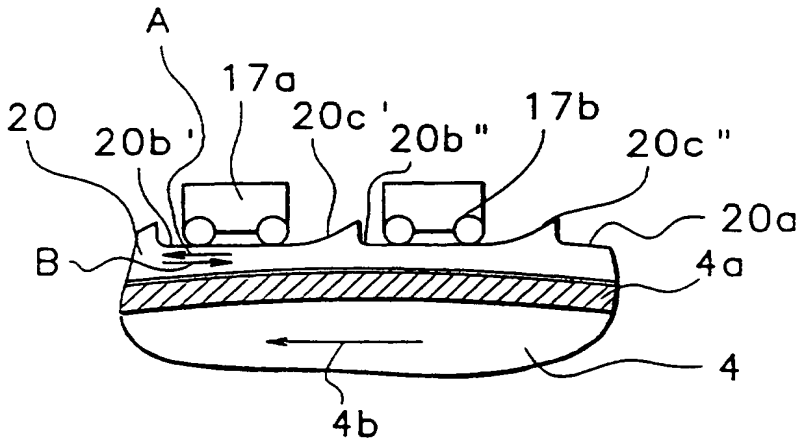


FIG. 8a

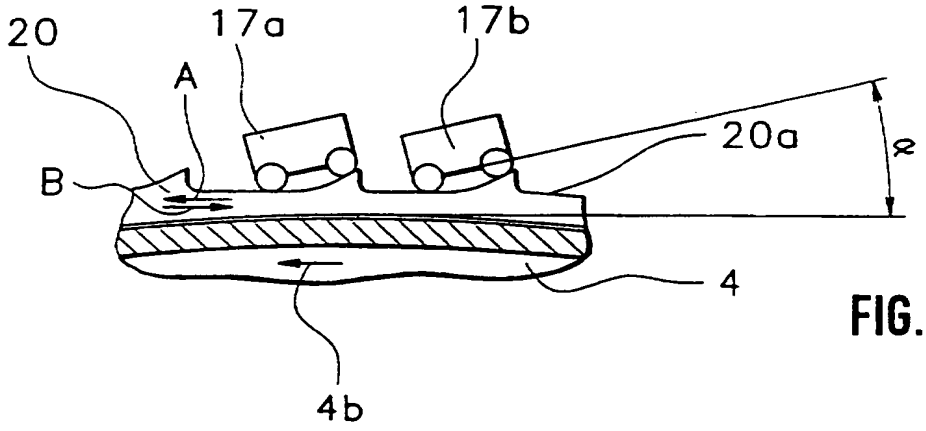


FIG. 8b

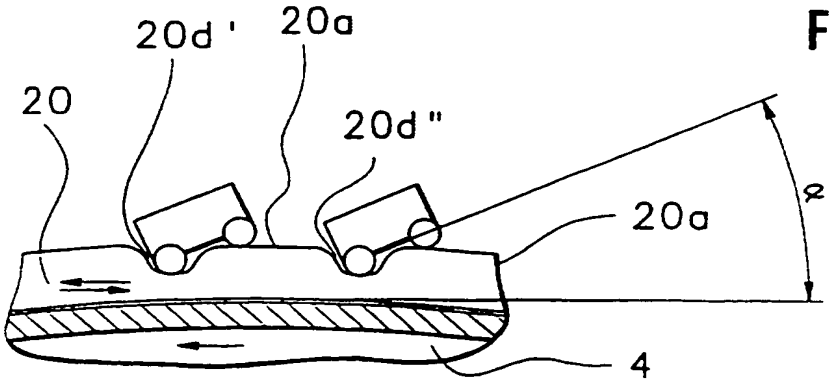


FIG. 9

Improvements in or relating to the mounting of carding segments at a spinning preparation machine

The invention relates to an arrangement at a spinning preparation machine, especially a carding machine, cleaner or the like, having at least one carding segment.

In a known arrangement (EP 0 422 838), there are associated with the cylinder of a carding machine a plurality of stationary carding segments (fixed carding elements), each of which is fastened to the associated side frame of the carding machine by way of its end portions. At each end face of each carding segment there is a plate having an outward projection to which there is attached a fixing screw having an adjusting nut. The distance of the clothing of the carding segment from the cylinder clothing can be adjusted individually by manual actuation of the adjusting nut. The adjusting process by way of the adjusting nuts to produce a desired and uniform carding gap at the start of installation or upon re-setting is complicated. That adjustment is possible only when the machine is idle, with the result that continuous productive operation of the carding machine is also interrupted.

It is an aim of the invention to provide a fixed card segment arrangement that avoids or mitigates the disadvantages mentioned, that is simple especially from the point of view of design and installation, that facilitates more precise and more uniform adjustment and enables alteration of the carding intensity, especially during continuous operation.

The invention provides a carding arrangement for use in a spinning preparation machine having at least one clothed roller, the arrangement comprising a carding segment and bearing means for the carding segment, the carding segment having clothing and being so arranged that the carding segment clothing is opposed to the clothed surface of a said roller, wherein the bearing means for the carding segment comprises a flexible bearing layer which is arranged between an end portion of the carding segment and a stationary supporting surface of the machine and the flexible bearing layer is so arranged that it can effect adjustment of the radial distance between the roller clothing and the carding segment clothing.

As a result of the measures according to the invention, it is possible to alter the carding intensity in simple manner. For example, the carding intensity may be

adjusted in reaction to changes of a technological order, e.g. nep count and/or fibre deterioration, even when there is a change in the fibre material to be processed. A further particular advantage is that after the displacement of the bearing layer the distance between the carding segment clothings and the cylinder clothing, which is desirably uniform at all points around the circumference, is maintained, resulting in a significant improvement in the sliver produced. The position of the convex outer surface of the bearing layer is displaced radially. The flexibility (elasticity) of the bearing layer ensures that the curved shape of the outer surface of the bearing layer can be adapted so that the distance between the carding segment clothing and the cylinder clothing is kept substantially uniform at all points around the circumference. A further advantage is that the displacement can take place continuously, for example during operation. It can take place automatically or immediately "at the press of a button", thus avoiding any time-consuming installation requirement and any interruptions to production. It is also especially advantageous that the convex outer surface of the bearing layer - on which each of the carding segments lie - can be

displaced radially on both sides of the machine concentrically with the circumference of the cylinder (cylinder surface). In that manner it is possible to set an infinite number of support points substantially continuously variably for the end regions of the carding segments.

According to the invention, a carding segment is understood to be a carrier element having a clothing, which is basically, that is to say substantially and predominantly, stationary during continuous operation. The carding segment is displaced locally radially, according to the invention also during continuous operation, only when an alteration to the setting of the carding nip is desired or necessary. In addition, in one embodiment the carding segment is displaced together with the displaceable bearing surface. A desired (targeted) alteration of the radial distance can be effected, for example, upon alteration of the type of fibre material processed. A necessary alteration may be effected especially during operation because of an undesired increase in the nep count and/or a fibre shortening in the sliver. The arrangement according to the invention is preferably a part of the so-called self-adjusting carding machine. An adjustment in response

to the change in type of fibre material can be effected on the basis of stored values. The change in dependence upon the nep count and/or fibre shortening can take place on the basis of measurement values.

Advantageously the distance a is determined by the thickness c of the bearing layer in the radial direction. Preferably the bearing surface is of parallel curved shape. Advantageously the bearing and base surfaces are convergent towards one another. The bearing surface is preferably displaceable in the circumferential direction. Advantageously the bearing surface is exchangeable, for example, for a thicker bearing surface. The supporting surface is preferably the convexly curved surface of the side screen. Advantageously the supporting surface is arranged parallel to the convexly curved surface of the side screen. Preferably the supporting surface is a groove, in which a portion of the bearing surface is arranged. Advantageously the bearing surface is made of a flexible plastics material. Preferably the plastics material is resistant to abrasion. Advantageously the plastics material has a low coefficient of friction. Preferably the lower inclined surface (base surface) of the bearing surface co-operates with a correspondingly inclined

supporting surface. Advantageously the bearing surface is displaceable in the radial direction by from about 0.01 to 0.3 mm. Preferably the fixed carding segment remains stationary during displacement of the bearing surface in the circumferential direction. Advantageously the fixed carding segment and the bearing surface are displaced together in the circumferential direction. Preferably the adjustment of the radial distance is effected continuously variably. Advantageously the roller is the cylinder of a carding machine. Preferably the roller is the licker-in. Advantageously the roller is arranged at an opener, cleaner or the like. Preferably the fixed carding segments are biased against the bearing surface, for example by a spring, biasing strap or the like. Advantageously a plurality of fixed carding segments are associated with the roller. Preferably the fixed carding segment has one carding element. Advantageously the fixed carding segment has two or more carding elements. Preferably a drive device, for example a motor, is associated with the displacement device. Advantageously the displacement device has adjusting elements, for example lever, toothed rack, toothed wheel, hinges or the like. Preferably the displacement device engages substantially in the centre of

the bearing layer. Advantageously at least some of the bearing layer has teeth, which co-operate with at least one toothed wheel. Preferably the drive device, e.g. a motor for displacing the bearing layer, is connected to an electronic controlling and regulating device, e.g. a microcomputer. Advantageously a measuring device for detecting the fibre length is connected to the electronic controlling and regulating device. Preferably a measuring device for detecting the nep count is connected to the electronic controlling and regulating device. Advantageously a measuring device for detecting the distance a between the tips of the carding segment clothings and the tips of the cylinder clothing is connected to the electronic controlling and regulating device. Preferably a switching element for actuating the drive device is connected to the electronic controlling and regulating device. Advantageously a device for entering the measurement values of the fibre length is connected to the electronic controlling and regulating device. Advantageously two tapered elements are present. Advantageously the carding gap a is continuously adjustable. Preferably the carding gap between the carding segment clothing and the cylinder clothing is adjustable in

tapering manner. Advantageously the convex outer surface of the bearing layer has a shaped profile. Preferably the shaped profile comprises a flat face and an inclined face. Advantageously the shaped profile comprises an indentation. Preferably the carding nip is adjustable in relation to the cylinder clothing by a widening angle α when the first teeth (viewed in the direction opposite to the direction of rotation) of the carding segment clothing become worn.

Certain illustrative embodiments of the invention will now be described in detail with reference to the accompanying drawings, in which:

Fig. 1 is a diagrammatic side view of a carding machine having an arrangement according to the invention;

Fig. 2 is a side view, partly in section, of a carding segment and a part of a bearing layer on a support at a side screen of a carding machine;

Fig. 2a is an enlarged view of a part of the segment of Fig. 2;

Fig. 3a is a side view of an arrangement having a displaceable bearing layer with two carding

segments, with the bearing layer and carding segments in a first position;

Fig. 3b is a side view of the arrangement according to Fig. 3a with the bearing layer in a different position, but with the carding segments in the first position according to Fig. 3a;

Fig. 3c is a side view of the arrangement according to Fig. 3a with both the bearing layer and the carding segments in a different position;

Fig. 4a is a side view of an arrangement having a flexible bend with groove, bearing surface and displaceable wedge surface and further having carding segments (fixed card top carding machine);

Fig. 4b is a section through one side of the arrangement of Fig. 4a;

Fig. 5 is a side view, partly in section, of carding segments having a clamping strap as holding and loading element;

Fig. 6 shows diagrammatically two displaceable resilient wedge-shaped elements (bearing and

intermediate layer) suitable for supporting carding segments;

Fig. 7 is a partial side view of a portion of a bearing layer, including a block diagram of an electronic regulating and controlling device, to which there are connected the at least one nep sensor, a fibre length sensor and an adjusting device, for example a motor, for displacing the bearing layer;

Fig. 8a shows an embodiment which allows for inclined setting of the carding segments;

Fig. 8b shows the embodiment of Fig. 8a with the bearing layer so positioned that the carding segments are inclined; and

Fig. 9 shows a further embodiment which allows for inclined setting of the carding segments.

Figure 1 shows a carding machine, for example of the kind made by Trützschler GmbH & Co. KG and known as the EXACTACARD DK 803 (trade mark), having a feed roller 1, a feed table 2, lickers-in 3a, 3b, 3c, a cylinder 4, a doffer 5, a stripper roller 6, nip rollers 7, 8 a web guide element 9, a sliver funnel 10, delivery rollers 11, 12, a revolving card top 13 with revolving card top bars 14, a

can 15, a can coiler 16, and stationary carding segments 17' and 17''. The stationary carding segments 17' and 17'' are arranged to be displaceable in accordance with the invention. The reference numeral 4b denotes the direction of rotation of the cylinder 4, the reference numeral 4a denotes the clothing of the cylinder 4 and the reference letter M denotes the centre axis of the cylinder 4. The directions of rotation of the rollers are indicated by curved arrows. The carding segment 17' is arranged between the licker-in 3c and the rear card top turning roller 13a of the revolving card top, and the carding segment 17'' is arranged between the doffer 5 and the front card top turning roller 13b of the revolving card top.

In the embodiment of Figure 2 at each side of the carding machine there is fastened to the sides of the machine frame (not shown) an approximately semi-circular rigid side screen 18 onto the outside of which there is cast concentrically in the region of the periphery a curved rigid bearing element 19, which has as supporting surface a convex outer surface 19a and an underside 19b. Above the bearing element 19 is a flexible bearing layer 20, for example made of a slidable plastics material, which has a convex outer surface 20a and a concave inner surface 20b.

The concave inner surface 20b rests on the convex surface 19c in a ring-shaped groove 19' and is able to slide in that groove in the direction of arrows A, B. The convex surface 19c is not concentric with the cylinder 4, so that convex surface 19c is inclined in the circumferential direction relative to the cylinder circumference, that is, its position is defined by a curve of gradually decreasing distance from the roller axis. The bearing layer 20 is displaced by a displacement device, which comprises a drive device, such as a motor, gears or the like (for example, of the kind shown in Fig. 7). The carding elements 17' have at both ends bearing surfaces which each rest on the convex outer surface 20a of a respective bearing layer 20. Attached to the underface of the carding segment 17' are carding elements 24a, 24b having carding clothings 24a', 24b'. The reference numeral 21 denotes the envelope of the tips of the clothings 24a', 24b'. The cylinder 4 has at its circumference a cylinder clothing 4a, for example saw-tooth clothing. The reference numeral 22 denotes the envelope of the tips of the cylinder clothing 4a. The distance between the tip envelope 21 and the tip envelope 22 is denoted by the reference letter a and is, for example, 0.20 mm. The distance between the convex outer

surface 20a and the tip circle 22 is denoted by the reference letter b. The radius of the convex outer surface 20a is denoted by r_1 and the radius of the tip envelope 22 is denoted by r_2. The radii r_1 and r_2 intersect one another at the centre point M (see Fig. 1) of the cylinder 4.

The carding segment 17' according to Figure 2 consists of a carrier 23 and two carding elements 24a, 24b, which are arranged in succession in the direction of rotation (arrow 4b) of the cylinder 4, the clothings of the carding elements 24a, 24b and the clothing 4a of the cylinder 4 lying opposite one another. The wedge-shaped bearing layer 20 is displaceable on the inclined groove surface 19c in the direction A, B, as a result of which, upon displacement, the carding segment 17' is moved in the direction of arrows C, D. The distance a between the clothings 24a', 24b' of the carding elements 24a, 24b and the cylinder clothing 4a can thus be adjusted precisely and in simple manner.

Figures 3a, 3b and 3c show an embodiment in which a wedge-shaped (tapered) bearing layer 20 can be displaced on the bearing element 19 in the direction of arrow A. As a result of the displacement, for example by 50 mm, the distance b between the clothing tips 24a', 24b' and the

cylinder clothing 4a, that is to say the distance b between the tip envelopes 21 and 22, is increased from b_1 (Fig. 3a), for example 0.30 mm, to b_2 (Figs. 3b, 3c), for example 0.5 mm. r_3 denotes the radius of the convex outer surface of the base 19c of the groove, r_4 denotes the radius of the concave inner surface 20b of the bearing layer 20. The convex surface 19c and concave surface 20b are not concentric with the cylinder 4. As a result of the displacement of the bearing layer 20 in direction A, the carding segments 17a, 17b are displaced in the direction of arrow D - radially relative to the cylinder 4 - with the result that the distance between the clothings is increased from a to b. Figure 3a shows the initial position, in which there is a distance c between an end of the bearing layer 20 and an end of the bearing element 19. After the displacement in direction A of the bearing layer 20, according to Figures 3b and 3c there remains only the smaller distance d between the end of the bearing layer 20 and the end of the bearing element. According to Fig. 3b, only the bearing layer 20 is displaced in direction A, the carding segments 17a, 17b remaining stationary in the circumferential direction in relation to the bearing element 19, that is to say the distance e between the end

of the bearing element 19 and the carding segments 17a, 17b remains the same. The carding segments are held fast in the circumferential direction by a holding and loading element, for example a biasing strap (see Fig. 5), a biasing spring or the like. The resilient holding and fastening element, however, enables the carding elements 17a, 17b to be displaced in direction D. According to Figure 3c, the bearing elements 20 and the carding elements 17a, 17b are moved together in direction A, that is to say the distance e according to Fig. 3b is increased to distance f according to Fig. 3c. The carding segments 17a, 17b are entrained to a certain extent in direction A by the bearing layer 20. In that case only one fastening element, for example a spring or the like, is required, which connects the carding segments 17a, 17b to the bearing layer 20 in a positive or non-positive fit.

According to Fig. 4a inside the groove 19' between the concave inner surface 20b and the base 19c of the groove there is a displaceable intermediate layer 25, which is of tapered construction and is made of a flexible material, for example plastics. The bearing layer 20 is concentrically parallel and is also made of a flexible material, for example plastics. The reference numeral 26

denotes the flexible bend of the carding machine. The Figure shows the card top region of a fixed-position card top carding machine, in which there is no revolving card top 13 having revolving card top bars 14 (see Fig. 1). There is a plurality of, that is to say more than two, carding segments 17a to 17n. According to Fig. 4b, the bearing layer 20 projects above the groove 19', which is open to the top, in the flexible bend 26.

Fig. 5 shows an arrangement for holding and loading carding segments, having a biasing strap 27, for example made of plastics, steel or the like, which is fastened at one end to a stationary bearing 29 by way of a tension spring 28. The other end of the biasing strap 28 is fastened to a further bearing (not shown). The carding segments 17a, 17b and 17c are fastened to the biasing strap 27 by way of fastening elements, for example screws 30a, 30b and 30c, respectively. In that manner the carding elements 17a, 17b, and 17c are urged against the bearing layer 20 and are held fast upon displacement of the bearing layer 20 in the direction of arrows A, B in the circumferential direction. The carding segments 17a, 17b and 17c are displaceable in the direction of arrow D.

Figure 6 shows diagrammatically an arrangement having a tapered intermediate element 19 and displaceable bearing layer 20. The distance g between the convex outer surface 20a and the concave inner surface 20b decreases in the circumferential direction - viewed in direction B - from g_1 to g_2, and the distance h between the convex outer surface 19a and the axis M of the cylinder 4 increases in the circumferential direction - viewed in direction B - from h_1 to h_2 so that the sum of the two distances g_1, h_1 and g_2, h_2 is constant at all points around the circumference. A first wedge is formed by the bearing layer 20, and a second wedge is formed by the bearing element 19. The concave inner surface 20b and the convex outer surface 19a are in sliding contact with one another. The centre point of the concave inner surface 20b and the convex outer surface 19a lies outside the centre point M of the cylinder 4.

Figure 7 shows one form of drive arrangement suitable for effecting displacement of bearing layer 20. Attached to the bearing layer 20 is a driver element 31, which is connected to a toothed rack 32a received in the underside of bearing layer 20 and in which there engages a toothed wheel 32b that is arranged to rotate in direction O, P. Toothed wheel 32b is driven by a drive device 33, for

example a reversible motor, as a result of which the bearing layer 20 is displaceable in the direction of arrows A, B. Also present is an electronic controlling and regulating device 34, for example a microcomputer, to which there are connected a measuring device 35 for automatically detecting the nep count, e.g. of the kind made by Trützschler GmbH & Co. KG and known as the NEPCONTROL NCT (trade mark), a measuring device 36 for detecting the fibre length and an adjusting device, e.g. a drive motor 33. The measurement values for the fibre length, which are detected, for example, by a fibrograph, can also be entered into the electronic controlling and regulating device 34 by way of an entering device 37. A switching element 38, for example a push-button or the like, can also be connected to the electronic controlling and regulating device 34, with which the motor 33 is actuated. A measuring device 39, e.g. of the type made by Trützschler GmbH & Co. KG and known as the FLATCONTROL FCT (trade mark), for detecting the distance a between the tips of the clothings 24a', 24b' and the tips of the cylinder clothings 4a can also be connected to the electronic controlling and regulating device 34. The types of fibre material to be processed can

be stored in a memory, which is integrated, for example, in the microcomputer 34.

According to Figs. 8a, 8b, the convex outer surface 20a of the bearing layer 20 has a shaped profile. Recesses are provided which have an essentially flat face 20b', 20b'' and an inclined face 20c' and 20c''. As shown in Fig. 8a, initially the carding segments 17a, 17b are set in such a manner that the carding gap a, that is to say the distance between the carding segment clothings 24a', 24b' and the cylinder clothing 4b, is uniform. It has been shown in practice that during operation after a certain time the first teeth - viewed in the direction opposite to the direction of rotation 4b of the cylinder 4 - of the carding segment clothings 24a', 24b' suffer greater wear than the other adjacent teeth - viewed in the direction of rotation 4b. For that reason, according to Fig. 8b the bearing layer 20 is displaced (moved) in direction A so that the region of the carding segments 17a, 17b having the worn teeth slides upwards on an inclined face 17a, 17b and the carding nip adopts a widening angle α in relation to the cylinder clothing 4a. As a result, the worn teeth are engaged less or not at all and the teeth of the carding

segment clothings 24a', 24b' that are less worn or are not worn at all are used for the carding work.

Figure 9 shows a further embodiment for obtaining inclined setting of the carding segments 17a, 17b at angle α. In that case, the shaped profile of the layer 20 is provided with indentations 20d', 20d'' in addition to the flat face 20a.

Claims

1. A carding arrangement for use in a spinning preparation machine having at least one clothed roller, the arrangement comprising a carding segment and bearing means for the carding segment, the carding segment having clothing and being so arranged that the carding segment clothing is opposed to the clothed surface of a said roller, wherein the bearing means for the carding segment comprises a flexible bearing layer which is arranged between an end portion of the carding segment and a stationary supporting surface of the machine and the flexible bearing layer is so arranged that it can effect adjustment of the radial distance between the roller clothing and the carding segment clothing.

2. An arrangement according to claim 1, in which the distance between the carding segment clothing and the roller clothing is determined by the thickness of the bearing layer in the radial direction.

3. An arrangement according to claim 1 or claim 2, in which the bearing layer is of concentrically parallel curved shape.

4. An arrangement according to claim 1 or claim 2, in which arrangement is such that a bearing surface of the bearing layer and a surface upon which the bearing layer is supported converge towards one another.

5. An arrangement according to any one of claims 1 to 4, in which the bearing layer is displaceable in the circumferential direction.

6. An arrangement according to any one of claims 1 to 5, in which the bearing layer is exchangeable.

7. An arrangement according to any one of claims 1 to 6, in which the bearing layer is supported by a supporting surface that is a convexly curved surface of a side screen of the spinning preparation machine.

8. An arrangement according to claim 7, in which the supporting surface is arranged parallel to the convexly curved surface of the side screen.

9. An arrangement according to claim 7 or claim 8, in which the supporting surface has a groove in which a portion of the bearing layer is arranged.

10. An arrangement according to any one of claims 1 to 9, in which at least the bearing surface of the bearing layer is made of a flexible plastics material.

11. An arrangement according to claim 10, in which the plastics material is resistant to abrasion.

12. An arrangement according to claim 10 or claim 11, in which the plastics material has a low coefficient of friction.

13. An arrangement according to any one of claims 1 to 12, in which the lower surface (base surface) of the bearing layer is inclined and co-operates with a correspondingly inclined supporting surface.

14. An arrangement according to any one of claims 1 to 13, in which at least one curved element is present between the bearing layer and the stationary supporting surface.

15. An arrangement according to claim 14, in which the at least one curved element is exchangeable.

16. An arrangement according to claim 14 or claim 15, in which the at least one curved element is of tapered configuration.

17. An arrangement according to any one of claims 1 to 16, in which the bearing layer can be displaced in the radial direction by from about 0.01 to 0.3 mm.

18. An arrangement according to any one of claims 1 to 17, in which the carding segment remains in the same

circumferential position during displacement of the bearing layer in the circumferential direction.

19. An arrangement according to any one of claims 1 to 18, in which the carding segment and the bearing layer are displaced together in the circumferential direction.

20. An arrangement according to any one of claims 1 to 19, in which the adjustment of the radial distance can be effected continuously variably.

21. An arrangement according to any one of claims 1 to 20, in which the roller is a carding cylinder.

22. An arrangement according to claim 21, in which the stationary carding segment is present in addition to a revolving card top.

23. An arrangement according to any one of claims 1 to 20, in which the roller is a licker-in.

24. An arrangement according to any one of claims 1 to 26, in which the arrangement is such that when an upstream or downstream region - viewed in the direction of rotation - of the carding segment clothing becomes worn the carding gap is adjustable in relation to the roller clothing by a widening angle.

25. An arrangement according to any one of claims 1 to 24, in which the convex outer surface of the bearing layer has a shaped profile.

26. An arrangement according to claim 25, in which the shaped profile comprises an essentially flat face and an inclined face.

27. An arrangement according to claim 25, in which the shaped profile comprises an indentation.

28. An arrangement according to any one of claims 1 to 27, in which a plurality of stationary carding segments are associated with the roller.

29. An arrangement according to any one of claims 1 to 28, in which the or each fixed-position carding segments is biased against the bearing layer.

30. An arrangement according to claim 29, in which the carding segment or segments are biased by a spring, biasing strap or the like.

31. An arrangement according to any one of claims 1 to 30, in which the or each carding segment has a carding element.

32. An arrangement according to claim 30, in which there is at least one carding segment having two or more carding elements.

33. An arrangement according to any one of claims 1 to 32, which further comprises a displacement device for the displacement of the bearing layer, the displacement device comprising a drive device.

34. An arrangement according to claim 33, in which the drive device is a motor.

35. An arrangement according to cclaim 33 or claim 34, in which the displacement device has adjusting elements, for example a lever, toothed rack, toothed wheel, hinges or the like.

36. An arrangement according to any one of claims 33 to 35, in which the displacement device engages substantially in the centre of the bearing layer.

37. An arrangement according to any one of claims 33 to 36, in which at least some of the bearing layer has teeth, which co-operate with at least one toothed wheel.

38. An arrangement according to any one of claims 1 to 37, which further comprises an electronic control and regulating device for effecting radial displacement of the bearing surface of the bearing layer.

39. An arrangement according to claim 38, in which a drive device, for example a motor for displacing the bearing

layer, is connected to the electronic controlling and regulating device.

40. An arrangement according to claim 38 or claim 39, in which a measuring device for detecting the fibre length is connected to the electronic controlling and regulating device.

41. An arrangement according to any one of claims 38 to 40, in which a measuring device for detecting the nep count is connected to the electronic controlling and regulating device.

42. An arrangement according to any one of claims 38 to 41, in which a measuring device for detecting the distance between the tips of the carding segment clothings and the tips of the roller clothing is connected to the electronic controlling and regulating device.

43. An arrangement according to any one of claims 38 to 43, in which a switching element for actuating a drive device is connected to the electronic controlling and regulating device.

44. An arrangement according to any one of claims 38 to 43, in which an element for entering the measurement values of the fibre length is connected to the electronic controlling and regulating device.

45. An arrangement at a spinning preparation machine, especially a carding machine, cleaner or the like, having at least one carding segment, in which the clothing of the at least one carding segment, which is basically stationary during operation, lies opposite the clothing of a high-speed roller and an adjusting means is associated with each of the end portions of the carding segment, which adjusting means is able to alter the radial distance between the clothing of the roller and the clothing of the at least one carding segment, wherein the radial distance between the roller clothing and the carding segment clothing can be adjusted by the position and/or shape of a flexible bearing layer which is arranged between the end portions of the carding segments and a stationary supporting surface of the machine.

46. An arrangement for effecting radial displacement of one or more stationary carding segments substantially as described herein with reference to and as illustrated by any of figs. 1, 2, 2a,3a to 3c, 4a, 4b, 5 to 7, 8a, 8b and 9.

47. A carding machine having a revolving card top and at least one stationary carding segment, in which the position

of the stationary card segment is adjustable by means of an arrangement according to any one of claims 1 to 46.

48. A carding machine having a fixed card top in which the positions of the card segments of the fixed card top are adjustable by means of an arrangement according to any one of claims 1 to 46.

49. An opener or cleaner having a clothed roller and a stationary carding segment associated therewith, the position of the carding segment being adjustable by means of an arrangement according to any one of claims 1 to 46.

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Application No: GB 9916200.0 **Examiner:** G R A H A M WERRETT

Claims searched: 1-49 **Date of search:** 14 December 1999

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Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): D1N.

Int Cl (Ed.6): D01G

Other: Online : WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2320260 A	(TRUTZSCHLER) see e.g. flexible band 17, Fig. 3.	1.
X	GB 1278045	(CARDING) see e.g. p. 3, l. 34 on.	1, 45.
X	GB 0344220	(SIO) see e.g. flexible bends 1, 2, Fig. 1.	1, 45.

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.